

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

## FACT SHEET

(pursuant to NAC 445A.236)

**Applicant:** Nye County  
P.O. Box 887  
Tonopah, Nevada 89049

**Permit:** NEV96004

**Location:** Pahrump Valley Municipal Landfill  
Latitude: 40° 58' 10" N  
Longitude: 117° 50' 27" W  
Township 20 S, Range 53 E, Section 2

**General:** The Applicant has been receiving sewage sludge and domestic septage at the Pahrump Valley Municipal Landfill (PVML) for dewatering and disposal since 1982. The Applicant initially applied for this permit in August 1991. The permit will require the sewage sludge to be dried in the ten concrete-lined, drying beds with leak detection. The Applicant currently accepts sewage sludge from the sewage treatment plants in the Pahrump Valley. Domestic septage and grease trap material may be dried in the lined or unlined drying beds. These materials are dewatered to reduce material volume and associated landfill leachate. The concrete-lined drying beds are being operated under temporary permit TNEV2001363 through April 11, 2002. The permit will authorize the number of unlined drying beds to be increased from ten to twenty. Authorization for temporary emergency dewatering of sewage sludge in unlined drying beds may be granted under this permit. The sewage sludge, domestic septage and grease trap material pH must be raised to at least twelve standard units for pathogen control and vector attraction reduction. Dried sludge and septage is placed in the PVML for disposal.

The site is located at the base of the alluvial fan that rises sharply to the east. The groundwater aquifer system within Pahrump Valley consists of coarse-grained alluvial sand and gravel, interbedded with finer grained valley fill. In general, two principle separate aquifers exist in Pahrump Valley; a series of deep, confined water-bearing zones and a shallow, unconfined aquifer. The majority of the groundwater withdrawn in the valley is from the deeper aquifer zones estimated at depths in excess of 200 feet for most valley locations. The regional groundwater flow is generally from northeast to southwest at the landfill. There are 21 domestic wells and the landfill water supply well within one mile of the drying beds.

The 2-foot deep, 55-foot long, 28-foot wide lined drying beds are reportedly constructed with a 4-inch thick, reinforced concrete primary liner overlying a 40-mil PVC secondary liner. The drainage layer between the liners consists of an upper 6-inch aggregate base and a 2-inch minimum thickness layer of sand in contact with the secondary liner. The soil below the secondary liner is sloped toward a 12-inch diameter leak detection and recovery system (LDRS) sump, so that the sand layer thickens to accommodate a 4-inch PVC pipe that drains to the LDRS sump. The section of the PVC pipe within the drainage layer is perforated. This permit will authorize the Applicant to use all ten concrete-lined drying beds.

The size and volume of the unlined drying beds are variable and have not been specified. The ten new drying beds, if constructed, must be located upgradient of the to be constructed monitoring well W-3 or another monitoring well must be constructed downgradient of the drying beds. The total volume of the new unlined drying beds shall not exceed the approximate total volume of the ten existing unlined drying beds. The unlined drying beds are approximately 150 feet from the fenced property line, therefore the following standards apply:

Constituent	Maximum Concentration
Arsenic (mg/kg)	34
Chromium (mg/kg)	220
Nickel (mg/kg)	240

mg/kg: Milligrams per kilogram

The Permittee will require generators and/or transporters of domestic septage to provide representative sampling results for arsenic, chromium, and nickel on a quarterly basis from the material they deposit in the unlined drying beds for a period of two years, and annually thereafter, or, upon change in their standard collection practices and/or locations. If the concentration of any of these three metals is above the maximum concentration, the septage must be dried in the lined drying beds.

As part of the application process, the Applicant installed a monitoring well, W-2, downgradient of the drying beds to evaluate water quality and performed three percolation tests in the area of the existing drying beds and in the area of the proposed drying bed expansion. The monitoring well was not constructed according to the Division's Guidance Document for Design of Groundwater Monitoring Wells, WTS-4. The Guidance requires that the screen in a groundwater monitoring well extend a minimum of one foot above the maximum seasonal high water table. W-2 was constructed with the screened interval starting thirty-four (34) feet below the static water level. The W-2 construction and water quality data is summarized in the Receiving Water Characteristics section. The 220-foot deep monitoring well W-1 is no longer functional and should be properly abandoned. Based on the percolation test data, the soils underlying the drying beds are permeable, infiltration rates of 0.25 to 10 inches per minute, and there are no apparent continuous clay layers under the site. Drilling at the site has identified clay and silt layers that are not likely to be continuous, based on fluvial deposition.

**Receiving Water Characteristics:** In 2001, groundwater monitoring well W-2 was constructed downgradient of the drying site to a depth of 220 feet below ground surface (bgs) and screened from 189 to 209 feet bgs with a static water level at 155 feet bgs. Bedrock was not encountered. Groundwater samples were analyzed for a suite of parameters including: volatile organic compounds (VOCs), inorganic compounds (metals and non-metals), total extractable petroleum hydrocarbons (TPH), total organic carbon (TOC), fecal coliform, and Total Kjeldahl Nitrogen (TKN).

The groundwater at the site is potable. No VOCs were detected except acetone, 67 micrograms per liter. This value is assumed to be a lab error. The following inorganics were detected: barium 0.048 milligrams per liter (mg/L), boron 0.10 mg/L, calcium 52 mg/L, iron 0.10 mg/L, magnesium 26 mg/L, manganese 0.010 mg/L, potassium 2.6 mg/L, sodium 7.3 mg/L, chloride 5.0 mg/L, nitrate as N 0.58 mg/L, sulfate 13 mg/L, total dissolved solids 219 mg/L, and total phosphorus 0.015 mg/L. No TPH or TKN were detected. TOC was detected at a concentration of 0.3 mg/L. The fecal coliform concentration was < 2 maximum probable number (MPN).

In 2001, the Applicant conducted an analysis of the water quality of three domestic wells near the PVML and the PVML water supply well. Although analyzed for a more limited list of constituents, the water at the four wells was of similar quality to that in monitoring well W-2; none of the groundwater samples exceeded any of the drinking water standards. Based on this data, the groundwater in the vicinity appears not to have been impacted by the operation of the drying beds. The leakage from the drying beds has not yet reached the water table.

**Characteristics:** In 2001, the Applicant conducted an analysis of the fluid in one of the drying beds. The sample had a fecal coliform concentration of 110 MPN, a TOC concentration of 120 mg/L, a TKN concentration of 37 mg/L, and exceeded the following drinking water standards:

Constituent	Drinking Water Standard	Sump 4 Concentration
Aluminum (mg/L)	0.05 - 0.20	0.20
Arsenic (mg/L)	0.05	0.073
Chloride (mg/L)	250 - 400	390
Iron (mg/L)	0.3 - 0.6	2.3
Manganese (mg/L)	0.05 - 0.10	0.94
Total dissolved solids (mg/L)	500 - 1000	1488

**Flow:** The flow is limited primarily by the storage capacity of the drying beds. The Permittee is required to maintain a minimum of six (6) inches of freeboard in all drying beds. The daily maximum flow of less than 0.050 million gallons per day is based on the lowest fee category for this type of facility.

**Proposed Effluent Limitations:** During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge:

-Sewage sludge to the ten (10) double-lined, concrete drying beds with leak detection; and

-Domestic septage and grease trap material to either the ten (10) double-lined, concrete drying beds with leak detection, or the ten (10) (may be expanded to twenty (20)) unlined drying beds.

- a. Effluent samples taken in compliance with the monitoring requirements specified below shall be collected at a location:
  - i. Entrance gates to the drying facility;
  - ii. Concrete-lined drying bed leak detection and recovery system sumps 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10; and
  - iii. All lined and unlined drying beds.
- b. The effluent discharge shall be limited and monitored in accordance with the following specifications:

EFFLUENT DISCHARGE LIMITATIONS

PARAMETER	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS		
		Sample Location	Measurement Frequency	Sample Type
Flow (mgd)	< 0.050	i.	Continuous	Estimate, based on truck count & volume <sup>(1)</sup>
Average Daily Flow (gpd)	23	ii. <sup>(2)</sup>	Monthly <sup>(3)</sup>	Discrete
pH (SU)	12	iii. <sup>(4)</sup>	Daily	Discrete <sup>(5)</sup>

Notes:

- (1) Assume all entering trucks are full and state truck capacity.
- (2) Leak detection sump monitoring is not required for drying beds that did not contain wastes during that month. Permittee may report as not used or may check the sump and report accordingly.
- (3) The sump must be inspected and evacuated on a more frequent basis than monthly if the fluid level is above the top of the sump or the invert of any pipe which discharges into the sump, whichever level is lower. Records are required documenting the volume, date and time of extraction to show that sumps are maintained in this condition.
- (4) The pH must be measured in the four corners of each drying bed in use at the time of monitoring.
- (5) Report the average of the four (4) daily pH measurements for each bed in use. For each drying bed in use a spread sheet must report the date characterized, the average result and the drying bed number.

mgd: Million gallons per day  
gpd: Gallons per day  
SU: Standard Units.

**Groundwater Monitoring:** Discrete groundwater samples shall be collected to confirm the effective protection of groundwater under the established discharge conditions of this permit.

- a. Discrete samples shall be collected from each groundwater monitoring well, including W-3.
- b. Groundwater monitoring wells shall be conspicuously labeled, capped to prevent migration of surface contaminants to the groundwater, and locked to restrict access.
- c. The Permittee shall monitor all new and existing groundwater monitoring wells for the following parameters:

### GROUNDWATER MONITORING

PARAMETER	REQUIREMENTS	FREQUENCY		SAMPLE TYPE
		<u>Quarterly</u>	<u>Annually<sup>(1)</sup></u>	
Depth to Groundwater (feet)	Monitor & Report	W-3 <sup>(2)</sup>	---	Field Measurement
Groundwater Elevation (feet)	Monitor & Report	W-3 <sup>(2)</sup>	---	Calculate
PH (standard units)	Monitor & Report	W-3 <sup>(2)</sup>	---	Discrete
Nitrate -N (mg/L)	10 See Part I.2.d.	W-3 <sup>(2)</sup>	---	Discrete
Total Kjeldahl Nitrogen - N (mg/L)	Monitor & Report	W-3 <sup>(2)</sup>	---	Calculate
Chlorides (mg/L)	Monitor & Report	W-3 <sup>(2)</sup>	---	Discrete
Total Dissolved Solids (mg/L)	Monitor & Report	W-3 <sup>(2)</sup>	---	Discrete
Acetone (µg/L) <sup>(3)</sup>	Monitor & Report	---	W-3	Discrete
Fecal coliform (CFU or MPN/100 mL)	Monitor & Report	---	W-3 <sup>(4)</sup>	Discrete
Arsenic (mg/L)	0.05	---	W-3 <sup>(4)</sup>	Discrete
Manganese (mg/L)	0.05	---	W-3 <sup>(4)</sup>	Discrete

Notes:

- (1): Samples to be collected in the fourth quarter and reported in the fourth quarter discharge monitoring report.  
 (2): If the Division authorizes the temporary use of the unlined drying beds for sewage sludge, the monitoring frequency shall be increased from quarterly to monthly.  
 (3): If acetone is not detected in the first two annual groundwater characterizations, it shall be eliminated from the parameter list.  
 (4): If the Division authorizes the temporary use of the unlined drying beds for sewage sludge, the monitoring frequency shall be increased from annually to quarterly.
- mg/L: Milligrams per liter.      CFU: Colony forming units.  
 µg/L: Micrograms per liter.      MPN: Most probable number.  
 -N: As nitrogen.

- d. The detection of concentrations of nitrate as nitrogen (-N) in groundwater samples invoke the following limitations and response requirements:
- i. If the nitrate-N concentrations increase to 7.0 milligrams per liter (mg/L), an alternate method of disposal, approved by the Division, shall be selected.
  - ii. If the nitrate-N concentration in groundwater increases to 9.0 mg/L, construction of an approved alternate site or facility must begin.
  - iii. If the nitrate-N concentration increases to 10.0 mg/L, the discharge to groundwater, the unlined drying beds, must cease.

**Schedule of Compliance:** The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications which the Administrator may make in approving the schedule of compliance. The Permittee shall implement and/or execute the following scheduled compliance requirements:

- a. Upon the effective date of this permit, the Permittee shall achieve compliance with the effluent.
- b. Within ninety (90) days of the effective date of this permit, the Permittee shall submit an Operations and Maintenance Manual to the Division for review and approval.
- c. Within one hundred and twenty (120) days of the effective date of the permit, the Permittee shall construct a monitoring well, W-3, in the vicinity of monitoring well W-2 that complies with the Division's Guidance Document for Design of Groundwater Monitoring Wells, WTS-4.

- d. Sixty (60) days prior to the date that the active sewage sludge unit closes, the Permittee shall submit a facility closure plan to the Division for review and approval.
- e. Within one hundred and eighty (180) days of the effective date of this permit, the Permittee shall submit Nevada licensed Professional Engineer certification that the drying bed run-off collection system has the capacity to contain the run-off from the 25-year, 24-hour storm event.

There are no other special conditions.

**Procedures for Public Comment:** The Notice of the Division's intent to issue a permit authorizing the facility to discharge to the groundwater of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Pahrump Valley Times** and the **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. April 8, 2002, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination has been scheduled for 6:00 P.M. April 11, 2002 at the Bob Ruud Community Center, 150 N. Highway 160, Pahrump, Nevada 89060.

The public hearing will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

**Proposed Determination:** The Division has made the tentative determination to issue the proposed permit for a five (5) year period. This permit will not be renewed/reissued with unlined drying beds being used for waste dewatering or any other use. If the groundwater monitoring identifies increasing groundwater constituent concentrations, authorization to use the unlined drying beds will be revoked.

**Rationale for Permit Requirements:** Permit requirements are necessary to protect the public health and prevent the sewage sludge, septage, and grease trap material drying site from becoming a public nuisance and a source of groundwater pollution.

Prepared by: Bruce Holmgren  
March 2002